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July 14, 2009

Ms. Nefertiti Simmons  
Remedial Project Manager  
U.S. EPA Remedial Response Branch, Region 5  
77 West Jackson Blvd (SR-6)  
Chicago, IL 60604

Subject: Residential Removal Action - May 2009 Soil Re-Sampling Results  
Honeywell Residential Area located near the former Celotex Site  
2800 South Sacramento Avenue - Chicago, IL

Dear Ms. Simmons:

This letter is being submitted to document the May 2009 soil re-sampling and associated results for the three residential properties where visibly impacted soils were encountered during removal action activities conducted in the Residential Area in 2007. These samples were collected in accordance with the agreed upon approach as documented in the letter from CH2M HILL to USEPA dated February 4, 2008. This letter report is being submitted on behalf of Honeywell International Inc (Honeywell).

## Background

During remedial action conducted in August 2007, visibly impacted soil was observed in the back yards of three residential properties located at the north end of the southwest quadrant. These observations were discussed with EPA in August 2007 as documented in the letter report from CH2M HILL to USEPA dated September 11, 2007. Additional sampling and remedial action was subsequently conducted as documented in a letter report submitted to the USEPA on October 8, 2007.

In the October 8, 2007 letter, Honeywell proposed to re-sample the three properties following completion of the final phase of the Residential Removal Action. This re-sampling event occurred on October 24, 2007 and was conducted in accordance with the USEPA-approved FINAL Residential Soil Sampling Work Plan (CH2M HILL, 2006). A single composite soil sample was collected from the back yard of each of the three

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properties. The samples were collected from the three to three and a half foot depth interval from each of the borings advanced at each property. The individual polynuclear aromatic hydrocarbon (PAH) results obtained from the re-sampling event were converted to benzo(a)pyrene equivalent (BAPEQ) concentrations to support comparison and evaluation of the results. None of the seven PAHs used to calculate the BAPEQ value were detected. The results of this sampling event were documented in a letter submitted to the USEPA on February 4, 2008.

In the February 4, 2008 letter, Honeywell proposed to re-sample the three properties the following summer by collecting a single composite soil sample from the back yard of each property. This re-sampling event was conducted in August 2008 and the associated results were documented in a letter submitted to the USEPA on November 6, 2008. None of the seven PAHs used to calculate the BAPEQ value were detected.

In the November 6, 2008 letter, Honeywell proposed one additional round of soil sampling to be completed in 2009 to conclude the sampling and remedial action activities. Results of this sampling event are presented below.

## **Results of the May 2009 Re-Sampling**

### **Sample Collection**

The final re-sampling event occurred on May 7, 2009 and was conducted in accordance with the USEPA-approved FINAL Residential Soil Sampling Work Plan (CH2M HILL, 2006). A single composite soil sample was collected from the back yard of each of the three properties. The samples were collected from the one-half foot to three foot depth interval from each of the three borings advanced at each property.

Samples were collected using a 4-foot long Geoprobe® Macro-Core® sampler with dedicated polyethylene soil sleeves driven into the ground using an electric jackhammer. The sampler was removed from the ground using a vehicle floor jack.

A complete list of steps undertaken during the sampling activities, including collection of quality control/quality assurance (QA/QC) samples, did not deviate from the established standard procedures as presented in the FINAL Residential Soil Sampling Report (CH2M HILL, 2006).

### **Sample Data Evaluation**

Lancaster Laboratories Inc., a contracted independent laboratory, conducted the analyses of the soil samples. Collected soil samples were analyzed for PAHs using the USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, Method 8270C, Semi-volatile Organic Compounds by Gas Chromatography/Mass Spectrometry. The

specific compounds reported consist of the following seven PAHs that contribute to BAPEQ concentration:

- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Chrysene
- Dibenz(a,h) anthracene
- Indeno(1,2,3-cd)pyrene

The analytical results are presented through calculation of the BAPEQ concentration in accordance with USEPA-approved procedures. The BAPEQ concentration is the sum of the concentrations of seven PAH compounds, after each concentration is multiplied by that compounds relative potency (as compared to benzo(a)pyrene), as shown in Table 1 below.

**TABLE 1**  
PAH Potency Factors  
*Residential Study Area*  
*Former Celotex Site – Chicago, Illinois*

Compound	Relative Potency
Benzo(a)anthracene	0.1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenz(a,h)anthracene	1
Indeno(1,2,3-cd)pyrene	0.1

Compounds that are non-detect were utilized in the calculation by the standard procedure of assigning the value at ½ of the method detection limit. Estimated values (J qualified) were used at the reported value.

### **BAPEQ Results**

The individual PAH results obtained from the re-sampling event were converted to BAPEQ concentrations to support comparison and evaluation of the results. None of the seven PAHs used to calculate the BAPEQ value were detected.

Analytical results are provided in confidential **Attachment A**. The individual property results of the analyses (presented as BAPEQ) are contained in **Table A-1**. A summary of the individual PAH and QA/QC results are contained in **Table A-2**.

A summary of the non-property-specific BAPEQ results for the August 2008 residential soil sampling are provided in non-confidential **Appendix B, Table B-1**.

Copies of the original analytical reports provided by the independent analytical laboratory are available upon request.

### **Data Validation**

Validation of the analytical data generated during the August 2008 soil re-sampling event was patterned after the USEPA *Contract Laboratory National Functional Guidelines for Organic Data Review* (1999). Areas of review include holding time compliance, calibration verification, blank results, matrix spike precision and accuracy, method accuracy as demonstrated by laboratory confirmation samples, field duplicate results, surrogate recoveries, internal standard performance, and interference checks. The data review and validation process is independent of the laboratory's checks and focuses on the usability of the data to support the project data interpretation and decision-making processes.

The overall assessment of the data indicates that the completeness objectives were met for all method analyte combinations and the precision and accuracy of the data, as measured by the laboratory quality-control indicators, suggests that the project goals have been met. The confidential data validation memorandum is provided in **Attachment C**.

### **Path Forward**

The soil samples collected during this re-sampling event were analyzed for PAHs and verified that three feet of clean material remains present above the underlying residual impacts based on BAPEQ concentration. Based on these results collected during different seasons to assess potential variability, conditions remain stable two years after removal action completion. This additional round of soil sampling is proposed to conclude the sampling and remedial action activities.

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If you have any questions regarding the completed sampling activities, please contact me at 773-693-3800 Ext. 253.

Sincerely,

CH2M HILL

A handwritten signature in black ink, appearing to read "Joel D. Wipf", with a long horizontal stroke extending to the right.

Joel D. Wipf  
Project Manager

CHC/May 2009\_Re\_Sampling\_Final\_71409.doc

c: Karen Peaceman/ USEPA Region 5  
Chuck Geadelmann/ Honeywell  
Dan Cantor/ Arnold & Porter

ATTACHMENT A

## **Confidential Summary of Analytical Results**

ATTACHMENT B

**Non-Confidential Summary of Analytical  
Results**

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**TABLE B-1****May 2009 Re-Sampling BAPEQ Summary**

Residential Removal Action

*Near Former Celotex Site - Chicago, Illinois*

Area	Sample Date	Sample Start Depth	Sample End Depth	Sample Depth Units	BAPEQ Result (ppm)
SW	5/7/2009	6	36	inches	0.09
SW	5/7/2009	6	36	inches	0.09
SW	5/7/2009	6	36	inches	0.09
SW	5/7/2009	6	36	inches	0.09

## Notes:

BAPEQ = Benzo(a)pyrene Equivalent

Location codes: B = Back yard

Individual PAH and QA/QC results are provided in Table A-2.



ATTACHMENT C

## **May 2009 Data Validation Memorandum**

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# Honeywell Celotex Residential Study Area - May 2009 Data Quality Evaluation Report

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## Introduction

The objective of this Data Quality Evaluation (DQE) report is to document the data quality of analytical results for the samples collected and assessed as part of the Residential Study Area at the former Honeywell Celotex site. Soil samples were collected in May 2009.

The Quality Control areas that were reviewed and the resulting findings are documented within each subsection that follows. This data was validated for compliance with the cited analytical method requirements. This process also included a review of the data to assess the accuracy, precision, and completeness based upon procedures described in the guidance documents including the Environmental Protection Agency (EPA) National Functional Guidelines for Organic Data Review (EPA 1999). The Quality assurance/Quality control (QA/QC) summary forms and data reports provided by the laboratory were reviewed.

Samples were submitted to Lancaster Laboratories, Inc. for analyses of Polyaromatic Hydrocarbons (PAH) by SW-846 Method 8270C.

During the data review and validation process, the project chemist will qualify any data for which the QC is not within acceptance criteria. For this data set, there were no results qualified during data validation. However, the laboratory applied the following two qualifiers to the data:

- J Estimated. The analyte was present but the reported value may not be accurate or precise.
- U Not detected. The analyte was not detected above the method detection limit.

## Quality Control Review

The following list represents the QA/QC measures that were reviewed during the data quality evaluation process.

### Holding Times

Each sample must be analyzed within a method specified holding time.

The holding times for each parameter were evaluated according to SW-846 requirements and those presented in the QAPP. All holding time criteria were met.

### Blank Samples

Blank samples enable the reviewer to determine if an analyte may be attributed to sampling or laboratory procedures, rather than environmental contamination from site activities.

A laboratory method blank was analyzed with this sample set and evaluated according to SW-846 requirements and those presented in the QAPP. No detects were found in the blank sample.

### **Surrogate Recoveries**

Surrogate spikes consist of organic compounds which are similar in chemical composition and behavior to the method target compounds, but which are not normally found in environmental samples. Surrogate compounds are added to each sample and the recoveries are used to monitor lab performance and possible matrix interference.

The surrogate recoveries for each parameter were evaluated according to SW-846 requirements and those presented in the QAPP. All surrogate criteria were met.

### **Lab Control Sample/Lab Control Sample Duplicate (LCS/LCSD)**

These samples are quality control samples, spiked with a known concentration of target analytes, utilized to monitor laboratory method performance. The accuracy and precision of the LCS/LCSD indicate whether the analytical method was in control. Additionally, these measurements serve as a monitor of the overall performance of each step during the analysis, including sample preparation. The samples do not possess a difficult matrix as they consist of deionized laboratory water spiked with target compounds of interest.

The LCS/LCSD recoveries for each parameter were evaluated according to SW-846 requirements and those presented in the QAPP. All LCS/LCSD criteria were met.

### **Matrix Spike/Matrix Spike Duplicate (MS/MSD)**

This is an aliquot of sample spiked with a known concentration of target analytes. Spike recoveries are used to evaluate potential matrix interferences, as well as accuracy and precision pertaining to each specific matrix.

The MS/MSD recoveries for each parameter were evaluated according to SW-846 requirements and those presented in the QAPP. All MS/MSD criteria were met.

### **Field Duplicate Samples**

These samples measure field and laboratory precision as well as sample homogeneity. This information can only be determined when target compounds are detected.

The field duplicate precision for each parameter was evaluated according to SW-846 requirements and those presented in the QAPP. All field duplicate precision were met.

### **Rejected Data**

There was no data rejected such that there is not a valid result for each sample and parameter.

### **PARCCs**

**Precision**--is defined as the agreement between duplicate results, and was estimated by comparing duplicate matrix spike recoveries, and field duplicate sample results. The

precision between the native and field duplicate sample results for the majority of analyses were within acceptable criteria indicating that the sample matrix did not significantly interfere with the overall analytical process.

**Accuracy**--is a measure of the agreement between an experimental determination and the true value of the parameter. The samples were spiked with a surrogate compound with a known concentration before preparation. The surrogate and MS/MSD data provides a measure of the matrix effects as they may affect accuracy and precision on the analytical method. The LCS results demonstrate accuracy of the method. Spike recoveries were within the method acceptance limits, except where noted, which indicated no evidence of matrix interferences that would affect the usability of the data.

**Representativeness**--These criteria is a qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition. Representativeness is a subjective parameter and is used to evaluate the efficacy of the sampling plan design. Representativeness was demonstrated by providing full descriptions in the project scoping documents of the sampling techniques and the rationale used for selecting sampling locations.

**Completeness**--is defined as the percentage of measurements that are judged to be valid compared to the total number of measurements made. There was no data rejected or seen as not usable due to quality control or sampling technique issues.

**Comparability**--is another qualitative measure designed to express the confidence with which one data set may be compared to another. Factors that affect comparability are sample collection and handling techniques, sample matrix type, and analytical method. Comparability is limited by the other PARCC parameters because data sets can be compared with confidence only when precision and accuracy are known. Data from this investigation are comparable with other previous data collected at the site due to the laboratory use of EPA methods to analyze the samples and supported by the results of the laboratory's analytical reports.

## Conclusion

A review of the analytical data submitted for the former Honeywell Celotex site has been completed. An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed. The validation review demonstrated that the analytical systems were generally in control and the data results can be used in the project decision making process.